CLAIMS

1. A fusogenic vesicle comprising virosomal and liposomal lipids, capable of encapsulating at least one therapeutic or immunologically active substance, said fusogenic vesicle comprising fusion proteins or peptides with distinct fusion characteristics.

2. The fusogenic vesicle according to claim 1, wherein the vesicle is unilamellar.

3. The fusogenic vesicle according to claim 1 or 2, wherein the encapsulated therapeutic or immunologically active substance is selected from the group consisting of DNA, RNA, siRNA, proteins, peptides, amino acids and pharmaceutically active substances.

4. The fusogenic vesicle according to claim 3, wherein the encapsulated therapeutic or immunologically active substance is selected from the group consisting of a cosmetic agent, a pharmaceutical drug, an antigen or mixtures thereof.

5. The fusogenic vesicle according to claim 1, wherein the distinct fusion characteristics are selected from temperature, ion concentration, acidity, cell type and tissue type specificity.

6. The fusogenic vesicle according to claim 5, wherein the distinct fusion characteristics of the fusion proteins are temperature-specific.

7. The fusogenic vesicle according to claim 5, wherein the fusion proteins are derived from viruses.

8. The fusogenic vesicle according to claim 7, wherein the fusion proteins are derived from the group consisting of influenza, VSV, SFV, Sendai and HIV viruses.

9. The fusogenic vesicle according to claim 8, wherein the fusion proteins are derived from influenza virus.

10. The fusogenic vesicle according to claim 9, wherein the fusion proteins are X-31 HA, PR8/34 or A/Singapore HA.

11. The fusogenic vesicle according to claim 1, wherein the liposomal lipids are derived from the group consisting of glycolipids, phospholipids, cationic lipids, synthetic lipids and cholesterol.

12. The fusogenic vesicle according to claim 11, wherein the liposomal lipids comprise POPC and DDAB.

13. The fusogenic vesicle according to claim 1, wherein the virosomal lipids are derived from the group comprising influenza, VSV, SFV, Sendai and HIV virus.

14. The fusogenic vesicle according to claim 13, wherein the virosomal lipids are derived from influenza virus.

15. The fusogenic vesicle according to claim 1, wherein the vesicle has a diameter of between 100 and 300 nm.

16. The fusogenic vesicle according to claim 1, further comprising a cell-surface receptor, cytokine, growth-factor, antibody, or antibody fragment incorporated in the membrane or attached to said membrane.

17. A method for preparing a fusogenic vesicle encapsulating at least one therapeutic or immunologically active substance, comprising fusing liposomes encapsulating at least one therapeutic or immunologically active substance with virosomes having fusion proteins with distinct fusion characteristics.

18. A method of encapsulating at least one therapeutic or immunologically active substance in a fusogenic vesicle comprising fusing liposomes encapsulating at least one therapeutic or immunologically active substance with virosomes having fusion proteins with distinct fusion characteristics.

19. The method according to claim 17 or 18, wherein the vesicle is unilamellar.

20. The method according to claim 17 or 18, wherein the encapsulated at least one therapeutic or immunologically active substance is selected from the group consisting of DNA, RNA, siRNA, proteins, peptides, amino acids and pharmaceutically active substances.

21. The method according to claim 20, wherein the encapsulated at least one therapeutic or immunologically active substance is selected from the group consisting of a cosmetic agent, a pharmaceutical drug, an antigen, or mixtures thereof.

22. The method according to claim 17 or 18, wherein the distinct fusion characteristics of the fusion proteins are selected from temperature, ion concentration, acidity, cell type and tissue type specificity.

23. The method according to claim 22, wherein the distinct fusion characteristics of the fusion proteins are temperature-specific.

24. The method according to claim 17 or 18, wherein fusion proteins are used that are derived from viruses.

25. The method according to claim 24, wherein fusion proteins are used that are derived from the group consisting of influenza, VSV, SFV, Sendai and HIV viruses.

26. The method according to claim 25, wherein fusion proteins are used that are derived from influenza virus.

27. The method according to claim 26, wherein the fusion proteins are X-31 HA, PR8/34 or A/Singapore HA.

28. The method according to claim 17 or 18, wherein the liposomes are comprised of lipids selected from the group consisting of glycolipids, phospholipids, cationic lipids, synthetic lipids and cholesterol.

29. The method according to claim 28, wherein the liposomes are comprised of POPC and DDAB.

30. The method according to claim 17 or 18, wherein the virosomes are derived from the group consisting of influenza, VSV, SFV, Sendai and HIV viruses.

31. The method according to claim 30, wherein the virosomes are derived from influenza virus.

32. The method according to claim 17 or 18, further comprising re-sizing the fusogenic vesicles obtained after fusing liposomes encapsulating at least one therapeutic or immunologically active substance with virosomes having fusion proteins with distinct fusion characteristics.

33. The method according to claim 32, wherein said re-sizing is performed by extrusion of the vesicles.

34. The method according to claim 17 or 18, wherein re-sizing the fusogenic vesicle results in a diameter of between 100 and 300 nm.

35. The method according to claim 17 or 18, whereby at least one cell-surface receptor, cytokine, growth-factor, antibody, or antibody fragment is attached to the membrane or incorporated in the membrane of the fusogenic vesicle.

36. A method of treating or preventing a disease, comprising administering to the subject the fusogenic vesicle of claim 1.

37. The method of claim 36, wherein the disease is selected from the group consisting of viral, bacterial and fungal infections, degenerative diseases, hyper-proliferative diseases and other kinase associated disorders including cancer, infectious diseases, chronic infectious diseases, chronic diseases, allergies, cardiovascular diseases, inflammatory diseases (including skin inflamatory diseases such as psoriasis), immune diseases, cancer immune disorders, asthma, arthritis.

38. A pharmaceutical formulation containing a fusogenic vesicle according to claim 1.